

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference W0251WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEAA16)	
International application No. PCT/EP 03/06929	International filing date (day/month/year) 30.06.2003	Priority date (day/month/year) 26.07.2002
International Patent Classification (IPC) or both national classification and IPC B65D77/20		
Applicant CROWN PACKAGING TECHNOLOGY INC et al.		



1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 8 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 7 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 26.01.2004	Date of completion of this report 10.12.2004
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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**International application No. **PCT/EP 03/06929****I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-6, 10 as originally filed
7-9 received on 16.11.2004 with letter of 11.11.2004

Claims, Numbers

1-9 received on 16.11.2004 with letter of 11.11.2004

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-9
	No: Claims	
Inventive step (IS)	Yes: Claims	5-9
	No: Claims	1-4
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations

see separate sheet

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Re Item V**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following documents:

D1: DE 34 47 875 A

D2: FR 2 577 897

1. Independent claim 1

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT.

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):
a peelable lid structure for a container, the peelable lid structure including:
a barrier layer for preventing the passage of fluids; and
a tab (8) extending from a centre panel (2) (cf. Fig. 1, 3, 4) of the peelable structure from the container (cf. pag. 11, par. 2) to allow access to the container contents;
in which the barrier layer includes aluminium (cf. pag. 3, par. 1, pag. 7, par. 4);
and in which the tab (8) is folded over the centre panel (2) (cf. pag. 10 par. 1) and secured in the folded position (cf. pag. 9, l. 17-20) on the centre panel (2) for processing of can contents and/or handling operations.

from which the subject-matter of claim 1 differs in that the barrier layer includes less than 20 microns thickness of aluminium.

The problem to be solved by the present invention may therefore be regarded as how to provide a peelable lid structure that uses a very thin aluminium layer which is flexible and when flattened does take too much place and thus lowers the manufacturing costs.

Document D1 discloses that the peelable lid structure can be either folded in which case it stays on the centre panel or can be glued in which case is fixed on the centre panel (see pag. 9, lines 15-19). If for the first case, in which the tab is folded it might be that a thickness of aluminium layer of 60-70 microns is necessary (as also the applicant states in the description on page 1, line 25), for the second case, in which the tab is glued on the

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centre panel it will be obvious for the person skilled in the art that it is no more necessary a thick aluminium layer since it is not fixed by its thickness but by the glue.

Moreover, the feature of having a barrier layer with less than 20 microns thickness of aluminium have already been employed for the same purpose in a similar peelable lid structure having a barrier layer, see document D2, page 5, lines 18-28, page 5, line 37 - page 6, line 22. Document D2 expressly states that the barrier layer (2') which is generally made of aluminium can have a thickness between 7 and 40 microns and that starting with a thickness from 12 microns the aluminium has excellent barrier qualities and that up to 40 microns it can be torn perfectly ("...a partir de 12 microns d'épaisseur [l'aluminium] présente d'excellentes caractéristiques d'imperméabilité à l'oxygène, à la vapeur d'eau ainsi qu'aux rayons ultraviolets. D'autre part utilisé jusqu'à environs 40 microns, il se déchire parfaitement."). The document D2 does not suggest that the aluminium layer should have at least 12 microns and ideally 40 microns thickness, it states specifically that the maximum of the aluminium layer, in order to tear down perfectly, can be 40 microns. Also the document D2 specifically states that the barrier layer 2' can be made from a different material with the same barrier properties as aluminium, which means that also the situation of having no aluminium layer (thickness of aluminium layer 0 microns, which is included in claim 1 by claiming a thickness of aluminium layer of less than 20 microns) is foreseen by document D2.

It would be obvious to the person skilled in the art, namely when the result to be achieved is to obtain a very thin and thus flexible barrier layer with good barrier properties, to apply these features with corresponding effect to a peelable lid structure according to document D1, thereby arriving at a peelable lid structure according to claim 1. Moreover, a thickness of less than 20 microns is an obvious choice for the person skilled in the art knowing that starting with 12 microns the aluminium layer has excellent barrier properties and knowing that the thinner the aluminium layer is the more flexible it is. The subject-matter of claim 1 does therefore not meet the requirements of Article 33(3) PCT.

2: Independent claims 6 and 7

2.1. The document D1 is regarded as being the closest prior art to the subject-matter of claim 6, and shows (the references in parentheses applying to this document):

a method of forming a peelable lid structure having a centre panel, the method comprising:

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- cutting the peelable lid structure out of the lidding material;
- folding the tab portion of the peelable lid structure over the centre panel;
- securing the tab to the centre panel by heat sealing or bonding.

The subject-matter of claim 6 differs from this known method in that the following steps are comprised:

- forming a hole in a portion of a lidding material corresponding to the centre panel of the peelable lid structure;
- covering the hole by fixing a patch to a first side of the lidding material, thereby forming an area of patch exposed by the hole on the opposite side of the lidding material;
- securing the tab to the centre panel by heat sealing or bonding of the exposed are.

The subject-matter of claim 6 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as providing a small securing area of the tab which allows the presence of an unsecured area around it which helps in gripping the tab.

The solution to this problem, proposed by claim 6 of the present application, is considered as involving an inventive step (Article 33(3) PCT) because the concept of using a patch material which is exposed by a hole in the centre panel of the lidding material was not found in the prior art available yet.

2.2. The Independent claim 7 is an alternative to the solution proposed in the independent claim 6, differentiating from the subject-matter of claim 6 in that the hole to expose the patch is made in the tab and not in the centre panel of the lidding material. For this reasons and keeping in mind the argumentation in paragraph 2.1. above the solution proposed by claim 7 is regarded as involving an inventive step (Article 33(3) PCT).

3. Dependent claims

Dependent claims 2-4 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT), the reasons being as follows:

3.1. As stated in paragraph 1 above, document D2 discloses that the aluminium layer has

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excellent barrier properties starting from 12 microns. Also it discloses a barrier layer of between 7 and 40 microns. It will be an obvious choice for the person skilled in the art to choose a barrier layer having an aluminium layer of not more than 15 microns in order to obtain a peelable lid structure which can be flexible and cheaper to manufacture, thus obtaining a peelable lid structure according to claim 2 (page 5, lines 18-28, page 5, line 37 - page 6, line 22) (Art. 33(3) PCT).

Document D2 also disclose the features of claim 3 (cf. pag. 4, l. 6-7, l. 30-35)(Art. 33(3) PCT).

3.2. The feature of claim 4 is a matter of normal design procedure, its choice for fixing the tab (8) described in document D1 by the centre panel (2) would therefore be an obvious design possibility for the skilled person in order to solve the problem posed (Art. 33(3) PCT).

3.3. The combination of the features of dependent claim 5 is neither known from, nor rendered obvious by, the available prior art. The reason is that document D1, which is regarded as the closest prior art, discloses a peelable lid structure which has a tab secured to the centre panel of the lid. However neither this document or the others available in the prior art do not disclose the securing of the tab on the centre panel made only by a patch exposed by a hole in the tab or in the centre panel, solution chosen in order to obtain a small securing area of the tab which allows to have an unsecured area around it, used for gripping the tab.

3.4. Claims 8 and 9 are dependent on claim 7 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

4. Further remarks

Upon entry in the regional phase the applicant should observe the following remarks:

4.1. Independent claims 6 and 7 refer to methods of producing the product claimed in dependent claim 5:

4.2. If a new independent product claim is drafted the applicant should bear in mind that the features known in combination in document D1 should be placed in the preamble of such a claim and with the remaining features being included in the characterising part.

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Figure 3 is a schematic view of an alternative method of forming a peelable lid structure.

Figure 1 shows a basic flexible peelable lid structure 1 which has been fixed to a "ring" 2 for double seaming onto a container (not shown). The closure formed by the peelable lid structure and ring are typically intended for use in the packaging of fish, pet foods etc where an easy open end is desirable. Such products require processing in a retort at temperatures of typically 120°C to 132°C and this, together with the requirement of double seaming ring 2 to the container, make securing of the tab imperative. Prior to the present invention, it has always been thought necessary to have a relatively thick layer of aluminium in the peelable lid structure in order that the tab 3 be held against centre panel 4 by the dead fold of the aluminium layer.

In the structure 1 of figure 1, adhesive between the tab 3 and centre panel 4 of the peelable lid structure 1, secures the tab through a hole 5 in the lidding. Different ways of achieving this bond will become apparent from the description of figures 2 and 3 which follow.

Figure 2a and 2b are different aspects of the same method which index a lidding material 6 from left to right as shown in the drawings and a strip of patch material 7 at an angle to the path of the lidding material.

As a first step A in the process, a hole 5 is formed in the lidding material 6 at a position which corresponds to a tab of the final peelable lid structure. A self-

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adhesive patch 8 which ideally includes a reinforced backing surface, is either punched out (figure 2a) or cut off (figure 2b) from the strip of patch material 7 and stuck to the tab position (B and C). The patch 8 is
5 usually slightly larger than the size which the final tab of the peelable lid structure will be.

The lidding material with patch 8 is fed into a lid cutter and cut in conventional manner (step D) and sealed to a ring 2 to form the structure 1. Finally, the tab 3
10 is folded and stuck by adhesive on the patch 8 which is exposed by the hole 5. The final peelable lid structure is shown generally at position E.

Although this embodiment is described as using adhesive to secure the tab, it is clearly possible to
15 secure the tab by heat sealing if a heat sealable layer such as polypropylene is provided on the lidding material and patch material. The important feature is that curling of the tab during thermal processing is prevented. This method requires no difficult folding and makes good use
20 of material.

In the embodiment of figure 3, a lidding material 6 is indexed from left to right and a hole 5 punched in the centre of the future tab (step A) in a similar manner to that shown in figure 2. This embodiment, however, does
25 not require a separate strip of patch material. Instead, an outer part of the tab is used as a patch.

A U-shape is lanced or cut in a position corresponding to an outer part 10 of the tab, from the lidding material (step B) and the cut material folded
30 down to around 90 degrees. Motion of the lidding index

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feed continues the folding process until the outer part is completely folded over an inner part 11 of the tab.

If the lidding material includes a heat sealable layer, this can be used for bonding purposes.

- 5 Alternatively, a small drop of glue can be applied to the underside of the lidding material, particularly if this can be fed through the machine without touching machine components. The adhesive can be applied by various methods such as gravure printing. The use of hot melt
10 adhesive means that the glue can be reactivated by reheating using a contact plate, by ultraviolet radiation or by induction heating for example. The tab may be secured either prior to, during or after heat sealing to the ring. The heat seal may be used to reactivate
15 adhesive if the lidding material includes a conductive layer. Finally, a combination of the patch process of figure 2 and the tab folding of figure 3 can be used if extra rigidity of the tab is desirable. In the last case, patch material would be indexed and adhered to the
20 underside of the tab.

The lidding material is fed into a lid cutter and cut in conventional manner (step D) and sealed to a ring 2 to form the structure 1. Finally, the tab 3 is folded and stuck through the hole 5 by a heat seal layer of the
25 lidding material. Alternatively, the tab is secured by a hot melt adhesive. The final peelable lid structure is shown generally at position E.

Although these methods and structures have all been described with reference to a hole 5 which is formed in
30 the tab position, it is clearly possible for a hole to be

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CLAIMS:

1. A peelable lid structure for a container, the peelable lid structure including:

a barrier layer for preventing the passage of fluids; and

a tab extending from a centre panel of the peelable lid structure for removing the peelable lid structure from the container to allow access to the container contents;

in which the barrier layer includes less than 20 microns thickness of aluminium;

and in which the tab is folded over the centre panel and secured in the folded position on the centre panel for processing of can contents and/or handling operations.

2. A peelable lid structure according to claim 1, in which the aluminium layer is not more than 15 microns in thickness.

3. A peelable lid structure according to claim 1 or claim 2, in which the peelable lid structure includes one or more of the following layers: polyethylene terephthalate (PET), aluminium, nylon and/or polypropylene.

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4. A peelable lid structure according to any one of claims 1 to 3, in which tab is secured in the folded position by an adhesive and/or by heat sealing.

5. A peelable lid structure according to claim 4, in which the tab or centre panel includes a patch, an area of which is exposed by a hole in the tab or centre panel respectively, and the tab is secured in the folded position by the adhesive or heat sealing to the exposed area of patch.

6. A method of forming a peelable lid structure (1) having a centre panel (4) and a tab (3) extending from the centre panel (4), the method including folding the tab portion (3) of the peelable lid structure over the centre panel (4) and securing the tab (3) to the centre panel (4);

characterised by the steps of:

forming a hole (5) in a portion of a lidding material (6) corresponding to the centre panel (4) of the peelable lid structure (1);

covering the hole (5) by fixing a patch (8) to a first side of the lidding material, thereby forming an area of patch (8) exposed by the hole on the opposite side of the lidding material; and

cutting the peelable lid structure (1) out of the lidding material (6);

and characterised in that the folding of the tab (3) thereby covers the exposed area; and

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securing of the tab (3) to the centre panel (4) is by heat sealing or bonding of the exposed region.

7. A method of forming a peelable lid structure (1) having a centre panel (4) and a tab (3) extending from the centre panel (4), the method including folding the tab portion (3) of the peelable lid structure over the centre panel (4) and securing the tab (3) to the centre panel (4);

characterised by:

forming a hole (5) in a portion of a lidding material (6) corresponding to the tab (3) of the peelable lid structure;

covering the hole (5) by fixing a patch to a first side of the lidding material, thereby forming an area of patch exposed by the hole on the opposite side of the lidding material; and

cutting the peelable lid structure (1) out of the lidding material (6);

and characterised in that by folding the tab portion (3) of the peelable lid structure over the centre panel (4), the exposed region is covered by the centre panel; and

securing the tab (3) to the centre panel (4) is by heat sealing or bonding of the exposed area.

8. A method according to claim 7, in which the hole is formed in an inner part (11) of the tab and the patch (8) comprises an outer part (10) of the tab portion of the peelable lid structure, the method further comprising

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folding the outer part of the tab over an inner part of the tab, thereby covering the hole and forming the exposed area.

9. A method according to claim 7, further comprising:
folding an outer part (10) of the tab over an inner part (11) of the tab so that the patch (8) is disposed between the outer and inner parts of the tab; and
fixing the outer part (10) of the tab to the inner part (11).